

A-496A



- 1 -

SEQUENCE LISTING

<110> Snavelly, Marshall D.

<120> ENHANCED SOLUBILITY OF RECOMBINANT PROTEINS

<130> A-496

<140> 08/997,918

<141> 1997-12-24

<160> 59

<170> PatentIn Ver. 2.1

<210> 1

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 1

ctggtttaca tggctaaact ggctgaacag gctgaacgtt acga

44

<210> 2

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 2

agaaatggtt gaattcatgg aaaaagtttc cgctgctgtt gacgg

45

<210> 3

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 3

tgacgaactg accgttgaag aacgtaacct gctgtccgtt gctta

45

<210> 4  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 4  
caaaaacggt atcgggtgctc gtcgtgcttc ctggcgatc atctc 45

<210> 5  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 5  
ctccatcgaa cagaaagaag aatcccgtgg taacgacgac cacgt 45

<210> 6  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 6  
taccgctatc cgtgaatacc gttccaaaat cgaaaccgaa ctgtc 45

<210> 7  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 7  
cggtatctgc gacggtatcc tgaaactgct ggactcccgt ctgat 45

<210> 8  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 8  
cccggctgct gcttccggtg actccaaagt tttctacctg aaaat 45

<210> 9  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 9  
gaaaggtgac taccaccggt acctggctga gtttaaaacc ggtca 45

<210> 10  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 10  
ggaacgtaaa gacgctgctg aacacaccct ggctgcttac aaatc 45

<210> 11  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
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<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 11  
cgctcaggac atcgctaacg ctgaactggc tccgaccac ccgat 45

<210> 12  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 12  
ccgtctgggt ctggctctga acttctccgt tttctactac gaaat 45

<210> 13  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 13  
cctgaactcc ccggaccgtg cttgcaacct ggctaaacag gcttt 45

<210> 14  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 14  
cgacgaagct atcgctgagc tcgacaccct gggatgaagaa tccta 45

<210> 15  
<211> 45  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 15  
caaagactcc accctgatca tgcagctgct gcgtgacaac ctgac 45

<210> 16  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 16  
cctgtggacc tccgacatgc aggacgacgc tgctgacgaa atcaa 45

<210> 17  
<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 17  
agaagctgct gctccgaaac cgaccgaaga acagcaggct agctaa 46

<210> 18  
<211> 40  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 18  
gtttcggagc agcagcttct ttgatttcgt cagcagcgtc 40

<210> 19  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 19  
gtcctgcatg tcggaggtcc acagggtcag gttgtcacgc agcag 45

<210> 20  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 20  
ctgcatgatac aggggtggagt cttttagtaga ttcttcaccc agggt 45

<210> 21  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 21  
gtcgagctca gcgatagctt cgtcgaaagc ctgttttagcc aggtt 45

<210> 22  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 22  
gcaagcacgg tccggggagt tcaggatttc gtagtagaaa acgga 45

<210> 23  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 23  
gaagttcaga gccagaccca gacggatcgg gtgggtcggg gccag 45

<210> 24  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 24  
ttcagcgtta gcgatgtcct gagcggattt gtaagcagcc aggggt 45

<210> 25  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 25  
gtgttcagca gcgtctttac gttcctgacc ggttttaaac tcagc 45

<210> 26  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 26  
caggtaccgg tggtagtcac ctttcatttt caggtagaaa acttt 45

<210> 27  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 27  
ggagtcaccg gaagcagcag ccgggatcag acgggagtcc agcag 45

<210> 28  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 28  
tttcaggata ccgtcgcaga taccggacag ttcggtttcg atttt 45

<210> 29  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 29  
ggaacggtat tcacggatag cggtaacgtg gtcgtcgta ccacg 45

<210> 30  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 30  
ggattcttct ttctgttcga tggaggagat gatacgccag gaagc 45

<210> 31  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 31  
acgacgagca ccgataacgt ttttgtaagc aacggacagc aggtt 45



<210> 32  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 32  
acgttcttca acggtcagtt cgtcacgctc aacagcagcg gaaac 45

<210> 33  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 33  
tttttccatg aattcaacca tttcttcgta acgttcagcc tgttc 45

<210> 34  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 34  
agccagttta gccatgtaaa ccagttcttc acgaccggaa gccat 45

<210> 35  
<211> 39  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 35  
cacaccacag gatcccatat ggcttctggt cgtgaagaa 39

<210> 36  
 <211> 41  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:  
 Oligonucleotide

<400> 36  
 caacacccac tcgagttagc tagcctgctg ttcttcggtg c 41

<210> 37  
 <211> 48  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:  
 Oligonucleotide

<400> 37  
 ccacaccag ctagcctgct gttcttcggt cggtttcgga gcagcagc 48

<210> 38  
 <211> 786  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Full length  
 synthetic GF-14R gene

<400> 38  
 atggcttccg gcagagaaga actggttttac atggctagac tggctgaaca ggctgaacgt 60  
 tacgaagaaa tggttgaatt catggaaaaa gtttccgctg ctggtgacgg tgacgaactg 120  
 accgttgaag aacgtaacct gctgtccggt gcttacaaaa acgttatcgg tgctcgtcgt 180  
 gtttcttggc gtatcatctc ctccatcgaa cagaaagaag aatcccgtgg taacgacgac 240  
 cacgttaccg ctatccgtga ataccgttcc aaaatcgaaa ccgaactgtc cggatatctg 300  
 gacggtatcc tgaaactgct ggactcccggt ctgatcccggt ctgctgcttc cggtgactcc 360  
 aaagttttct acctgaaaat gaaaggtgac taccaccggt acctggctga gtttaaaacc 420  
 ggtcaggaac gtaaagacgc tgctgaacac accctggctg cttacaaatc cgctcaggac 480  
 atcgctaacg ctgaactggc tccgaccac cccgatccgtc tgggtctggc tctgaacttc 540  
 tccgttttct actacgaaat cctgaactcc ccggaccgtg cttgcaacct ggctaaacag 600  
 gcttttcgacg aagctatcgc tgagctcgac accctgggtg aagaatccta caaagactcc 660  
 accctgatca tgcagctgct gcgtgacaac ctgaccctgt ggacctccga catgcaggac 720  
 gacgctgctg acgaaatcaa agaagctgct gctccgaaac cgaccgaaga acagcaggct 780  
 agctaa 786

<210> 39  
<211> 39  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 39  
cacccaaccg ctagcggtac tggcgacccc aagttcgag 39

<210> 40  
<211> 33  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 40  
cacccaaccg gatccattag tccaggtcgc tag 33

<210> 41  
<211> 50  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 41  
cacccagcta gcaataacga tgacgatgac aaaactccat taggtcctgc 50

<210> 42  
<211> 31  
<212> DNA  
<213> Artificial Sequence  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
<400> 42  
cacccactcg agattacggc tgagccagat g 31

<210> 43  
<211> 48  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 43  
cacccagcta gcaataacga tgacgatgac aaagcacgt actggacc 48  
  
<210> 44  
<211> 34  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 44  
cacaccacac tcgagattat tccaggtagt ccgg 34  
  
<210> 45  
<211> 51  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 45  
cacaccacaa ggatccccaa taccgacgat gacaaagcac cgtactggac c 51  
  
<210> 46  
<211> 34  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence:  
Oligonucleotide  
  
<400> 46  
cacaccacac tcgagattat tccaggtagt ccgg 34

<210> 47  
 <211> 525  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence: Synthetic DNA  
 fragment encoding amino acids 22-194 of human OPG

<400> 47  
 atggaaactt ttccacctaa atatcttcat tatgatgaag aaactagtca ccagctgctg 60  
 tgcgacaaat gtcttcggg tacctacctg aaacagcact gcaccgctaa atggaaaacc 120  
 gtttgcgctc cttgtccgga ccactactac accgactcct ggcacacctc cgacgaatgc 180  
 ctgtactgct caccggtttg caaggagctg cagtacgtta aacaggaatg caaccgtacg 240  
 cacaaccgtg tatgcgaatg caaagaaggt cgttacctgg agatcgaatt ctgcctgaaa 300  
 caccgttcct gtccgcctgg ttctcggtgtt gtacaggctg gtaccccgga acgtaacacc 360  
 gtttgcaaac gttgcccgga cggtttcttc tccaacgaaa cctcgagcaa agctccgtgc 420  
 cgtaaacaca ccaactgctc cgttttcggg ctctgtgtaa cccagaaagg taacgctacc 480  
 caccgacaaca tctgctccgg taactccgag tcgaccagaa aataa 525

<210> 48  
 <211> 55  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:  
 Oligonucleotide

<400> 48  
 caccaaaccg ctagcaataa cgatgacgat gacaaagaaa cttttccacc taaat 55

<210> 49  
 <211> 27  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Description of Artificial Sequence:  
 Oligonucleotide

<400> 49  
 cacaacacag gatccattat ttctggg 27

<210> 50  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 50

caccagtcg accagaaag gttctacttc cggtgcttcc ggtcgtgaag

50

<210> 51

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:  
Oligonucleotide

<400> 51

caccaggat ccattactgc tgttcttcgg

30

<210> 52

<211> 10

<212> PRT

<213> Artificial Sequence

<220>

<221> PEPTIDE

<222> (4)

<223> Amino acid sequence of the 14-3-3 polypeptide  
(where Xaa = Leu or Ile)

<220>

<223> Description of Artificial Sequence: Internal  
14-3-3 polypeptide fragment

<400> 52

Arg Asn Leu Xaa Ser Val Ala Tyr Lys Asn

1

5

10

<210> 53

<211> 9

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Internal  
14-3-3 polypeptide fragment

<400> 53

Ala Ser Asn Asn Asp Asp Asp Asp Lys

1

5

&lt;210&gt; 54

&lt;211&gt; 6

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Internal  
14-3-3 polypeptide fragment

&lt;400&gt; 54

Arg Leu Gly Leu Ala Asn

1

5

&lt;210&gt; 55

&lt;211&gt; 8

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Enterokinase  
cut site

&lt;400&gt; 55

Ser Thr Leu Ile Met Gln Leu Leu

1

5

&lt;210&gt; 56

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Peptidase cut  
site

&lt;400&gt; 56

Asp Asp Asp Asp Lys

1

5

&lt;210&gt; 57

&lt;211&gt; 5

&lt;212&gt; PRT

&lt;213&gt; Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptidase cut site

<400> 57

Ala Ser Gly Thr Gly  
1 5

<210> 58

<211> 5

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Peptidase cut site

<400> 58

Gly Ser Thr Ser Gly  
1 5

<210> 59

<211> 13

<212> PRT

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence: Amino Acid Linker

<400> 59

Ile Glu Gly Arg Gly Ile Pro Asn Thr Asp Asp Asp Lys  
1 5 10